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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/517,434	03/02/2000	JAHANGIR S. RASTEGAR	13285	4946

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EXAMINER
BURCH, MELODY M

ART UNIT	PAPER NUMBER
3683	

DATE MAILED: 09/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/517,434	RASTEGAR ET AL.
	Examiner	Art Unit
	Melody M. Burch	3683

-- Th MAILING DATE of this communication appears on the cov r sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 July 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39,41,46,47 and 49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,12-32,35-39 and 41* is/are rejected.

7)☒ Claim(s) *9-11,33,34,46,47 and 49* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 July 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re: claim 23. The phrase "an amount of surface area in contact with the payload" first claimed in lines 4-5 is indefinite. It is unclear to the Examiner as to which element has the surface area in contact with the payload since both the deformable mat and the ramp means are previously claimed.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

4. Claims 1-4, 7, 12, 13, 19, 27-29, 35, 36, and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5732802 to Tsukagoshi.

Re: claims 1, 2, 12, 13, 35 and 38. Tsukagoshi shows in figures 10 and 12 a payload isolation system for isolating a payload 2a from a base structure 2b upon which the payload is supported, the payload isolation system comprising: motion constraint means comprising mechanical linkages 22,25 for maintaining a parallel relationship between the payload and the base structure; and support means 23,26 for providing vertical and/or lateral support of the payload relative to the base structure such that the transmission of vertical and/or lateral vibration between the payload and the base structure are suppressed.

Re: claims 3, 27, 28, and 36. Tsukagoshi shows in figure 12 the limitation wherein the mechanical linkage comprises at least one parallelogram linkage (22, 25, portions of 2a and 2b, and unnumbered linkage to the left of element 22 to the same extent that parts of the parallelogram linkage of the instant invention include portions of the payload and base structures) disposed between the payload and base structure.

Re: claims 4 and 29. Tsukagoshi shows in figure 12 the limitation wherein each of the at least one parallelogram linkage comprises first and second parallelogram sub-linkages the first sublinkage comprising elements 22,25,2a,2b and the second sublinkage comprising elements 22,2a,2b,and unnumbered linkage to the left of element 22 the first and second parallelogram sublinkages sharing a common member 22, one of the first or second parallelogram sublinkages being fixed to the payload or a

portion thereof, the other of the first or second parallelogram sublinkages being fixed to the base structure or a portion thereof as shown.

Re: claim 7. Tsukagoshi shows in figure 12 the limitation of the system further comprising damping means D for resisting relative displacement and/or velocity between the payload and base structure.

Re: claim 19. Tsukagoshi shows in figure 12 the limitation of a payload adjustment means 1 for adjusting the level of support of the support means in response to a variation in an effective payload weight and/or a variation in a relative distance between the payload and the base structure.

5. Claims 1-5, 8, 12, 13, 27-32, 35-38 rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 4068825 to Macpherson.

Re: claims 1-4, 12, 13, 27-29, 35, 36. Macpherson shows in figure 2 a payload isolation system for isolating a payload such as a vehicle not shown from a base structure such as the ground upon which the payload is supported, the payload isolation system comprising: motion constraint means including links 38,36,26,16,42 for maintaining a parallel relationship between the payload and the base structure throughout a range of motion see col. 5 lines 60-62 in combination with figures 1 and 2 and support means 11 for providing vertical and/or lateral support of the payload relative to the base structure such that the transmission of vertical and/or lateral vibration between the payload and the base structure are suppressed.

Re: claims 5, 30, and 37. At least one of the parallelograms includes the linkages 68,65 and a portion of links 26,38 which is non-parallel to the linkage including links 30,38,42,36.

Re: claims 8, 9, 31, and 32. The use of scissor construction is disclosed in col. 6 lines 15-23.

6. Claims 1 and 17 are rejected under 35 U.S.C. 102(e2) as being anticipated by US Patent 6389900 to Leist et al.

Re: claim 1. Leist et al. show in figures 4A and 4B a payload isolation system for isolating a payload 24 from a base structure 48 upon which the payload is supported, the payload isolation system comprising: motion constraint means 40 for maintaining a parallel relationship between a portion of the payload and the base structure at least in the areas of 63 and 67 as disclosed in col. 5 lines 53-56; and support means 58,46,50 for providing vertical and/or lateral support of the payload relative to the base structure such that the transmission of vertical and/or lateral vibration between the payload and the base structure are suppressed.

Re: claim 17. Leist et al. show in figures 4A and 4B the limitation wherein the support means comprises a bottom plate 50 fixed to one of the payload or base structure or portions thereof, a top plate 56 movable relative to the bottom plate and fixed to the other of the payload or base structure via intervening structures or portions thereof, the support means further comprising a compressible material 46 disposed in a space between the top and bottom plates as shown.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukagoshi in view of US Patent 5052529 to Sutcliffe et al. Sutcliffe et al. teach in figure 1 the use of a payload isolation system for isolating a payload 10 from a base structure 12, the system comprising motion constraint means 18 and support means 20,22,24 including actuators 22,24. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the support means of Tsukagoshi to have included actuators, as taught by Sutcliffe et al., in order to provide a means of actively controlling the vibration damping in the payload isolation system.

9. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leist et al. in view of US Patent 3191896 to Nathan. Nathan teaches in figures 1-3 the use of a resilient support means comprising a deformable mat having at least one internal tubular cavity 5 such that the deformable mat exhibits nonlinear elastic characteristics as shown in figure 5. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the support of Leist et al. with a support means, as taught by Nathan, in order to provide a greater range of deformation under certain loads.

10. Claims 18, 39, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leist et al. in view of US Patent 3834257 to Ganser. Leist et al. describe the invention substantially as set forth above (see rejection to claims 1 and 17) including an effective payload adjustment means including elements 58,62,60. Ganser teaches in the figure an elastomeric tubular element 6 coiled in a helical manner which may be extruded as taught in col. 1 lines 9-11. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the compressible material of Leist et al., to have included an elastomeric extruded tubular element coiled in a helical manner, as taught by Ganser, in order to provide a simple means of forming the element depending on manufacturing step requirements and in order to provide large amounts of compressible material in a confined space.

11. Claims 20, 21, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukagoshi in view of US Patent 5127622 to Whelpley et al. Whelpley et al. teach in figure 1 a payload isolation system including a payload adjustment means 20,16,30 comprising a support adjustment means 16, a feedback means 20,30 capable of sensing a change in relative distance between the payload and the base structure and controlling the support adjustment means in response thereto, a deformable mat 86 having at least one internal tubular cavity 88 and wherein the support adjustment means comprises: a gas source 18 in communication with the at least one internal cavity, a ramp means or periphery of element 44 for engaging the deformable mat, and a drive means or load on element 14 for driving the ramp means wherein the feedback means controls the gas pressure level in the internal tubular

cavity in response to the change in relative distance between the payload and the base structure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the payload adjustment means of Tsukagoshi to have included a support adjustment means and a feedback means etc., as taught by Whelpley et al., in order to provide a means of using active control to enhance the vibration damping capabilities of the payload isolation system.

12. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukagoshi in view of US Patent 5127622 to Whelpley et al. as applied to claim 20 above, and further in view of Ivers et al. Ivers et al. teaches in figure 6 the use of a first low pass filter 94, a summer 92, a gain means 98, and a second low pass filter 96. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the feedback means of Tsukagoshi, as modified, with the remaining components of the feedback means, as taught by Ivers et al., in order to provide an adjustably variable isolation system.

13. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukagoshi in view of Prior Art figure 19. Tsukagoshi describes the invention substantially as set forth above, but does not include the limitation of the payload and base structure being components of a rocket. Prior Art figure 19 teaches the use of a payload and base structure 101,102 as components in a rocket. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the payload isolation system of Tsukagoshi in the rocket environment, as taught by Prior Art figure 19, in order to isolate vibrating rocket components. It is inherent that

the effective weight (mg) of the payload will vary with time since the value of g will change during the rocket course.

14. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leist et al. in view of US Patent 6022005 to Gran et al. Gran et al. teach in col. 2 line 6 the use of a payload isolation system including motors. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the system of Leist et al. to have included motors or particularly voice coil motors, as taught by Gran et al., in order to provide a means of determining displacement within the system to provide active control.

Allowable Subject Matter

15. Claims 9-11, 33, 34, 46, 47, and 49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

16. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 4981381 to Murata and JP-9-27682 were mentioned in the Advisory Action of Paper no.10 to teach that rigid materials suppress vibrations.

Additionally, US Patent 6223483 to Tsukagoshi and JP-2000-193031 (unacceptable date for use as prior art) teach the use of motion constraint means maintaining a payload and base structure in parallel relationship throughout a range of motion with the constraint means comprising a mechanical linkage, US Patent 5855260 to Rubin and JP-11336830 teach the use of motion constraint means maintaining a payload and base structure in parallel relationship throughout a range of motion.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 703-306-4618. The examiner can normally be reached on Monday-Friday (7:30 AM-4:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder can be reached on 703-308-3421. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

19. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

JACK LAVINDER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

9/12/02

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September 12, 2002